axogen®

your surgical expertise, our peripheral nerve injury solutions

revolutionizing the science of nerve repair™

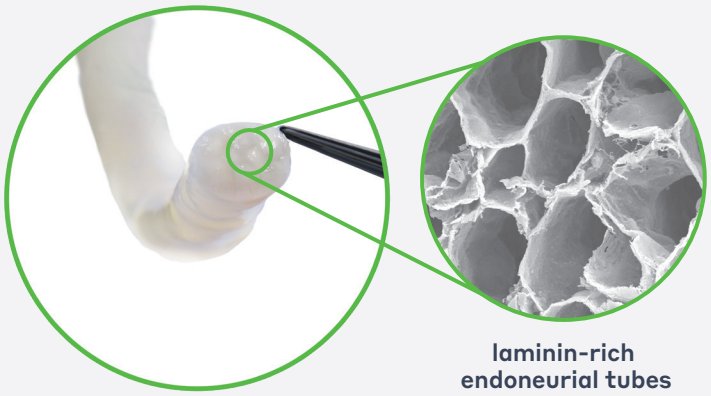
Peripheral nerve repair surgeons and health care providers understand the importance of innovative technologies that improve outcomes and positively impact patient lives.

The nerve repair space is constantly changing and Axogen is leading the science of restoring functionality to damaged nerves. We are passionate about helping restore quality of life to patients by providing innovative, clinically proven, and economically effective solutions.

Only Axogen offers a comprehensive suite of clinically proven solutions for your nerve repair needs – ranging from injured nerves in-continuity, to gaps over 70 mm, and non-reconstructable nerve ends. Depending on the injury, our technologies may be used alone or in conjunction with one another to produce the optimal outcome. Our technologies provide an option for surgeons to reconstruct injured nerves without the comorbidities associated with an additional surgical site.

Axogen has been a pioneer in regenerative medicine and is the only company solely dedicated to peripheral nerve repair. Together we can continue **revolutionizing the science of nerve repair.**

avance® nerve graft



laminin-rich endoneurial tubes

the **only** off-the-shelf biologically active processed human nerve allograft intended for the surgical repair of peripheral nerve discontinuities

key advantages

Structural support for cellular migration and regenerating axons

- Preserves the 3-dimensional (3D) micro-architecture of native human nerve
- Organized, linear, and continuous scaffold across the length of the graft

Clinically proven, off-the-shelf solution

- 82% meaningful recovery in sensory, mixed, and motor nerve gaps in multi-center study[1]
- Eliminates the comorbidities and operative time associated with a second surgical site
- Over 125 peer-reviewed clinical publications

Proprietary cleansing, decellularizing, and sterilizing process

- Preserves the extracellular matrix (ECM) of human nerve while removing inhibitors to axon regeneration
- Extensive testing to ensure the quality of the graft and guarantee identity, purity, potency, and safety
- Decellularization and sterilization methods ensure a safe product without the need for immunosuppression

Intra-operative versatility

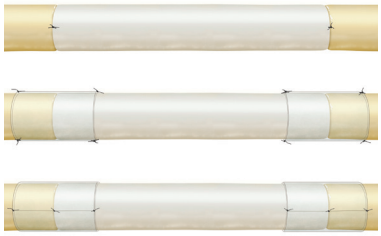
- Available in a variety of lengths and diameters to meet a range of anatomical needs
- Handles, sutures, and flexes at joints similar to native nerve

82% **meaningful recovery** throughout the body[1]

#1 **choice for hand surgeons** in digital nerve gaps of 2 cm[2]

95% **meaningful recovery** after neuroma excision and reconstruction[1]

options for 5 mm to 70 mm

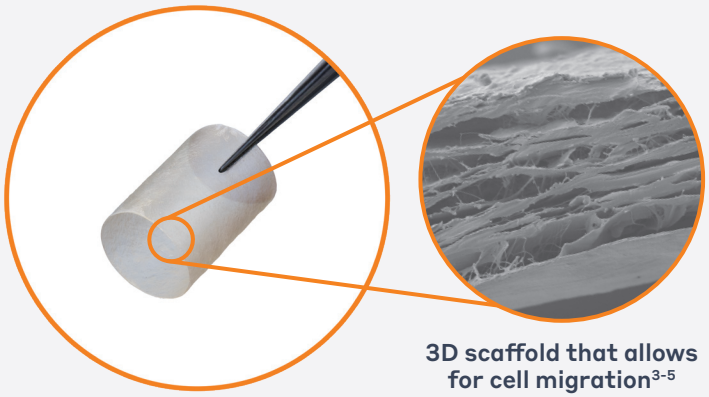


avance® nerve graft

avance® nerve graft + axoguard nerve connector®

avance® nerve graft + axoguard nerve protector®

axoguard nerve connector®



3D scaffold that allows for cell migration[3-5]

semi-translucent coaptation aid designed for Connector-Assisted Repair® (CAR) of transected nerves up to 5 mm

key advantages

CAR alleviates tension and inflammation at the critical zone of regeneration[6,7]

- Disperses tension across repair site
- Moves suture inflammation away from coaptation

CAR is a clinically proven alternative to direct suture repair[6]

- Reduces the risk of forced fascicular mismatch
- Aids alignment of nerve ends
- Reduces the potential for axonal escape

Vascularizes and remodels

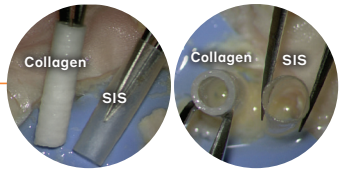
- Small intestine submucosa (SIS) incorporates into the patient's own tissue, creating a physical barrier to surrounding soft tissue[6,8]
- Supports natural wound healing

Intra-operative versatility

- Available in a variety of lengths and diameters to meet a range of anatomical needs
- Reinforces the coaptation site of direct, graft, or cable graft repairs
- Off-the-shelf option, stored at room temperature with a minimum 18-month shelf life

#1 market leader*

50% **increased likelihood** of pain at the coaptation site when primary suture is used versus CAR with various conduits[6]



Porcine SIS material offers excellent flexibility and is semi-translucent compared to opaque competitive collagen products

option for 0 mm to 5 mm

axoguard nerve connector®

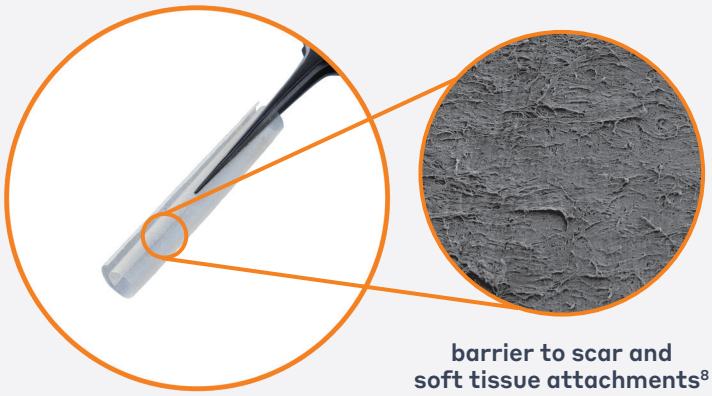
options for 5 mm to 70 mm+

avance® nerve graft + axoguard nerve connector®

autograft + axoguard nerve connector®

*IQVIA data

axoguard nerve protector®



barrier to scar and soft tissue attachments[8]

the **only** small intestine submucosa (SIS) implant designed to protect injured and compressed nerves up to 40 mm

key advantages

Protects and separates

Separates and protects the nerve from the surrounding tissues during the healing process

Provides a protective barrier to axonal escape[9]

Allows for nerve gliding

Minimizes the potential for soft tissue attachment and nerve entrapment by protecting the nerve[8]

Vascularizes and remodels

Small intestine submucosa (SIS) incorporates into the patient's own tissue, creating a physical barrier to surrounding structures[10,11]

Supports natural wound healing

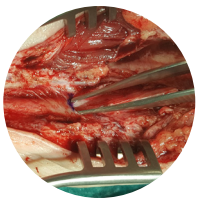
Intra-operative versatility

Available in a variety of lengths and diameters to meet a range of anatomical needs

Off-the-shelf option, stored at room temperature with a minimum 18-month shelf life

#1 market leader*

6 months to remodel into protective layer[8]



Remodels and vascularizes to minimize potential for adhesions

option for no transection or repaired nerve

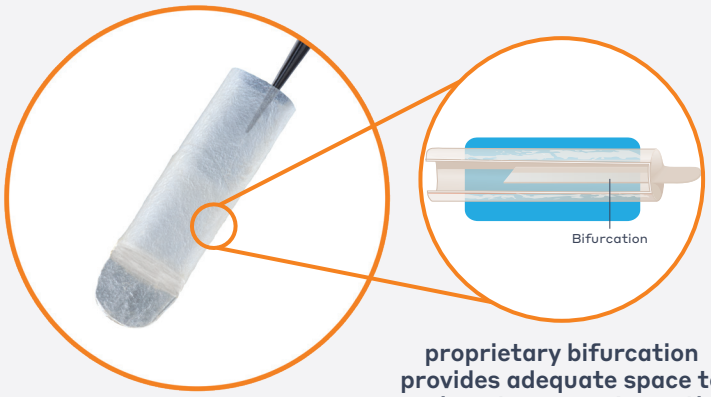
axoguard nerve protector®

options for 5 mm to 70 mm+

avance® nerve graft + axoguard nerve protector®

autograft + axoguard nerve protector®

axoguard nerve cap®



proprietary bifurcation provides adequate space to exhaust nerve outgrowth

proprietary SIS matrix designed to reduce the development of symptomatic or painful neuromas

key advantages

Protects and isolates

- Reduces the development of painful neuromas[12]
- Provides a barrier from neurotrophic factors and mechanical stimulation

Vascularizes and remodels

- Material gradually incorporates into patient's own tissue, creating a physical barrier to surrounding soft tissue[3,10,11]

Intra-operative versatility

- Ideal for anatomic areas with limited or no musculature
- Alternative to historical techniques, such as burying in muscle or bone
- Available in a variety of diameters

Ideal handling

- End tab facilitates anchoring the device to surrounding tissue, away from the surgical incision and mechanical stimulation
- Off-the-shelf option, stored at room temperature with an 18 month shelf life

at 12 weeks
reduced painful response to mechanical stimulation in a preclinical model[12]

10 mm
bifurcation to exhaust outgrowth

option for no distal target

axoguard nerve cap®

one company for all your surgical nerve repair solutions

avance® nerve graft

Biologically active, processed human nerve allograft developed for bridging nerve discontinuities up to 70 mm

Code	Dimensions
111215	1–2 mm x 15 mm
211215	2–3 mm x 15 mm
311215	3–4 mm x 15 mm
411215	4–5 mm x 15 mm
111230	1–2 mm x 30 mm
211230	2–3 mm x 30 mm
311230	3–4 mm x 30 mm
411230	4–5 mm x 30 mm
111250	1–2 mm x 50 mm
211250	2–3 mm x 50 mm
311250	3–4 mm x 50 mm
411250	4–5 mm x 50 mm
111270	1–2 mm x 70 mm
211270	2–3 mm x 70 mm
311270	3–4 mm x 70 mm
411270	4–5 mm x 70 mm

axoguard nerve connector®

Semi-translucent coaptation aid for nerve transections up to 5 mm

Code	Dimensions
AGX110	1.5 mm x 10 mm
AGX210	2 mm x 10 mm
AGX310	3 mm x 10 mm
AGX410	4 mm x 10 mm
AGX510	5 mm x 10 mm
AGX610	6 mm x 10 mm
AGX710	7 mm x 10 mm
AGX115	1.5 mm x 15 mm
AGX215	2 mm x 15 mm
AGX315	3 mm x 15 mm
AGX415	4 mm x 15 mm
AGX515	5 mm x 15 mm
AGX615	6 mm x 15 mm
AGX715	7 mm x 15 mm

axoguard nerve protector®

Extracellular matrix that remodels to protect injured nerves and reinforce nerve reconstructions

Code	Dimensions
AG0220	2 mm x 20 mm
AG0320	3.5 mm x 20 mm
AG0520	5 mm x 20 mm
AG0720	7 mm x 20 mm
AG1020	10 mm x 20 mm
AG0340	3.5 mm x 40 mm
AG0540	5 mm x 40 mm
AG0740	7 mm x 40 mm
AG1040	10 mm x 40 mm

axoguard nerve cap®

Separates nerve end from surrounding environment to protect from mechanical stimulation and reduce painful neuroma formation

Code	Dimensions
AGT215	2 mm x 15 mm
AGT315	3 mm x 15 mm
AGT415	4 mm x 15 mm

references

1. Safa B, Jain S, Desai MJ, et al. Peripheral nerve repair throughout the body with processed nerve allografts: Results from a large multicenter study. *Microsurgery*. 2020;40(5):527-537.
2. Azouz SM, Lucas HD, Mahabir RC, Noland SS. A survey of the prevalence and practice patterns of human acellular nerve allograft use. *Plast Reconstr Surg Glob Open*. 2018;6(8):e1803.
3. Nihsen ES, Johnson CE, Hiles MC. Bioactivity of small intestinal submucosa and oxidized regenerated cellulose/collagen. *Adv Skin Wound Care*. 2008;21(10):479-486.
4. Brown-Etris M, Cutshall WC, Hiles MC. A new biomaterial derived from small intestine submucosa and developed into a wound matrix device. *Wounds*. 2002;14:150-166.
5. Ko YG, Park JH, Lee JB, Growth behavior of endothelial cells according to electrospun poly (D,L-Lactic-Co-Glycolic Acid) fiber diameter as a tissue engineering scaffold. *Tissue Eng Regen Med*. 2016;13(4):343-351.
6. Ducic I, Safa B, DeVinney E. Refinements of nerve repair with connector-assisted coaptation. *Microsurgery*. 2017;37(3):256-263.
7. Postlethwait RW, Willigan DA, Ulin AW. Human tissue reaction to sutures. *Ann Surg*. 1975;181(2):144-50.
8. Kokkalis ZT, Pu C, Small GA, Weiser RW, Venouziou AI, Sotereanos DG. Assessment of processed porcine extracellular matrix as a protective barrier in a rabbit nerve wrap model. *J Reconstr Microsurg*. 2011;27(1):19-28.
9. Thomson SE, Ng NY, Riehle MO, et al. Bioengineered nerve conduits and wraps for peripheral nerve repair of the upper limb. *Cochrane Database Syst Rev*. 2017;2017(3):CD012574.
10. Badylak S, Kokini K, Tullius B, Whitson B. Strength over time of a resorbable bioscaffold for body wall repair in a dog model. *J Surg Res*. 2001;99(2):282-287.
11. Badylak SF. The extracellular matrix as a scaffold for tissue reconstruction. *Semin Cell Dev Biol*. 2002;13(5):377-383.
12. Tork S, Faleris J, Engemann A, Deister C, DeVinney E, Valerio IL. Application of a porcine small intestine submucosa nerve cap for prevention of neuromas and associated pain. *Tissue Eng Part A*. 2020;26(9-10):503-511.

*data on file

visit our website for more information

indications and trademark disclaimers

Avance Nerve Graft

REGULATORY CLASSIFICATION: Avance Nerve Graft is a human tissue for transplantation. Avance Nerve Graft is processed and distributed in accordance with U.S. FDA requirements for human cellular and tissue-based products (HCT/P) under 21 CFR Part 1271 regulations, U.S. State regulations and the guidelines of the American Association of Tissue Banks (AATB). Additionally, international regulations are followed as appropriate.
This graft is to be dispensed only by or on the order of a licensed physician.

INDICATIONS FOR USE: Avance Nerve Graft is a processed nerve allograft (human) intended for the surgical repair of peripheral nerve discontinuities to support regeneration across the defect.

CONTRAINDICATIONS: Avance Nerve Graft is contraindicated for use in any patient in whom soft tissue implants are contraindicated. This includes any pathology that would limit the blood supply and compromise healing or evidence of a current infection.

Axoguard Nerve Connector

INDICATIONS FOR USE: Axoguard Nerve Connector is indicated for the repair of peripheral nerve discontinuities where gap closure can be achieved by flexion of the extremity. The device is supplied sterile and is intended for one-time use.

CONTRAINDICATIONS: This device is derived from porcine source and should not be used for patients with known sensitivity to porcine material.

Axoguard Nerve Protector

INDICATIONS FOR USE: Axoguard Nerve Protector is indicated for the repair of peripheral nerve injuries where there is no gap. The device is supplied sterile and is intended for one-time use.

CONTRAINDICATIONS: This device is derived from porcine source and should not be used for patients with known sensitivity to porcine material.

Axoguard Nerve Cap

INDICATIONS FOR USE: Axoguard Nerve Cap is indicated to protect a peripheral nerve end and to separate the nerve from surrounding environment to reduce the development of symptomatic or painful neuroma.

CONTRAINDICATIONS: This device is derived from porcine source and should not be used for patients with known sensitivity to porcine material. Axoguard Nerve Cap is contraindicated for use in any patient in whom soft tissue implants are contraindicated. This includes any pathology that would limit the blood supply and compromise healing or evidence of a current infection.
Axoguard Nerve Cap should not be implanted directly under the skin.
NOTE: This device is not intended for use in vascular applications.

Disclaimer: Not all products are available internationally.

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revolutionizing the science of nerve repair™

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